

ABSTRACT OF THE DISCLOSURE

Silsesquioxane polymers that are useful for preparing SiO_2 -rich ceramic coatings are obtained as the polymeric reaction products from the hydrolysis and condensation of organosilanes having a β -substituted alkyl group. A preferred silsesquioxane polymer is the polymeric reaction product obtained from β -chloroethyltrichlorosilane. More preferred silsesquioxones are those with non-halogenated alkyl groups, such as the β -acetoxyethyl- and β -hydroxyethyl-silsesquioxones. Coating compositions containing such silsesquioxane polymers dissolved in organic solvent may be applied to a substrate and converted to SiO_2 -rich ceramic thin layers by evaporating the solvent and heating the coated substrate at moderate temperatures.